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Special Article - Updating the experimental composite leading indicator of the Australian business cycle: June Quarter 2000

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BACKGROUND

The ABS Experimental Composite Leading Indicator (XCLI) is a single time series designed to provide early signals of turning points in the Australian business cycle. It does not predict the level of GDP or signal recessions or recoveries. Past performance of the XCLI shows it led turning points in the business cycle by between one and six quarters, with the average being around two quarters.

The XCLI has been developed to supplement rather than to compete with existing forms of economic analysis and forecasting. It is published each quarter in Australian Economic Indicators (in the March, June, September and December issues).

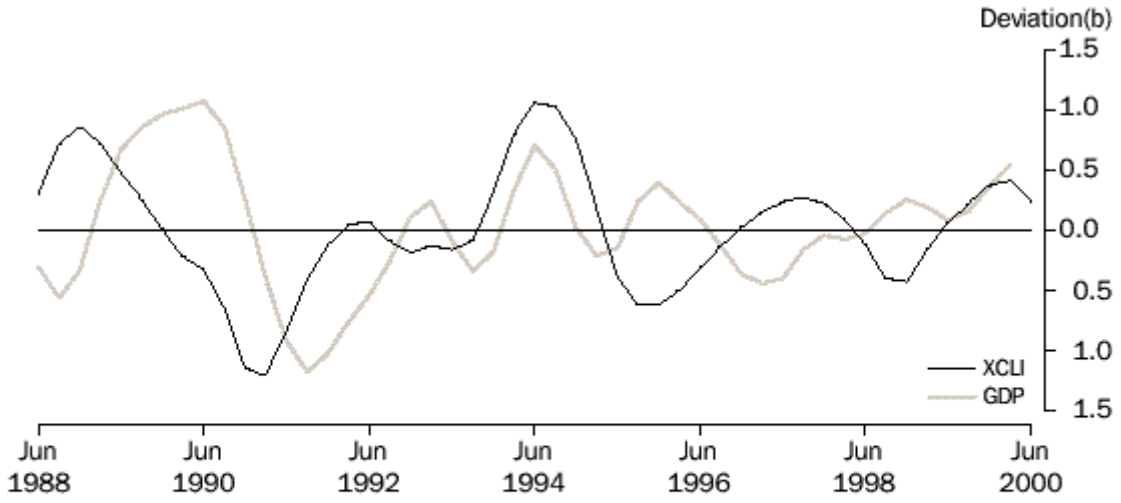
MOST RECENT MOVEMENTS

Following five consecutive quarters of growth, the XCLI declined 0.18 in the June quarter 2000, a turnaround of 0.22 from the previous quarter. This indicates a provisional peak in the XCLI in the March quarter 2000, which could foreshadow the end to growth in the GDP business cycle in the next one to six quarters.

In the June quarter 2000, the largest positive contribution to the change in the XCLI came from the United States GDP component (0.07) while the largest negative contribution came from the housing finance component (-0.12) (see table 2). Two components made significant turnarounds in their contribution to the change in the XCLI: the All Industrials from 0.05 to -0.03, and production expectations from 0.02 to -0.04.

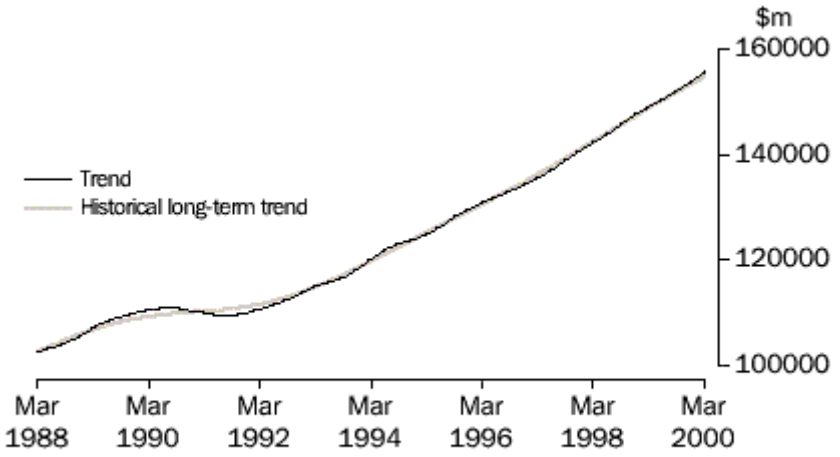
GDP trend rose 1.13% in the March quarter 2000, the third consecutive quarterly rise above 1%. With the exception of the June quarter 1999, GDP trend has been growing above 1% a quarter since the March quarter 1997. Meanwhile, the historical long-term trend rose by less than 1% in both the March quarter 2000 and December quarter 1999, following twenty five quarters of consecutive quarterly growth above 1%, the longest growth run above 1% since September 1972.

1. EXPERIMENTAL COMPOSITE LEADING INDICATOR (XCLI) AND ITS TARGET THE BUSINESS CYCLE IN GDP
Chain volume measure (reference year 1997-98)(a)



(a) The historical long-term trend growth rate of GDP is 0.94% in the March quarter 2000 and the trend growth rate is 1.13%.
(b) Deviation is the unit of measure for the GDP series. The XCLI series has no official unit of measure, ie it is dimensionless. (see Endnote).

2. GDP, Chain volume measure (reference year 1997-98)



Source: ABS (Cat. no. 5206.0), Quarterly data

Table 1: XCLI and GDP Chain volume measure (reference year 1997–98)

	Mar 1999	Jun 1999	Sep 1999	Dec 1999	Mar 2000	Jun 2000
Level						
XCLI	-0.15	0.07	0.22	0.37	0.41	0.24
GDP Trend ($m)	149,057	150,438	152,072	153,882	155,615	n.a.
GDP Long-term trend ($m)	148,779	150,321	151,831	153,336	154,778	n.a.
GDP Business cycle	0.19	0.08	0.16	0.36	0.54	n.a.
Movement from previous quarter						
XCLI (change)	0.28	0.22	0.15	0.15	0.04	-0.18
GDP Trend (% change)	1.01	0.93	1.09	1.19	1.13	n.a.
GDP Long-term trend (% change)	1.07	1.04	1	0.99	0.94	n.a.
GDP Business cycle (change)	-0.06	-0.11	0.08	0.2	0.18	n.a.

Table 2: Contributions to quarterly changes in the XCLI

	Mar 1999	Jun 1999	Sep 1999	Dec 1999	Mar 2000	Jun 2000
Trade factor	0.07	0.07	0.04	0.04	0.05	0.05
United States GDP	-0.05	-0.03	0.04	0.09	0.09	0.07
Housing finance commitments	0.04	0.07	0.07	-0.02	-0.10	-0.12
Job vacancies	-0.05	0.02	0.05	0.06	0.03	0.04
All industrials index	0.11	-0.02	-0.12	-0.04	0.05	-0.03
Real interest rate (INVERSE LAGGED FOUR QUARTERS)	0.01	0.03	0.03	-0.03	-0.05	-0.07
Production expectations (LAGGED ONE QUARTER)	0.04	-0.02	0.00	0.05	0.02	-0.04
Business expectations (LAGGED ONE QUARTER)	0.09	0.09	0.04	0.00	-0.04	-0.07
Total XCLI, change from previous quarter	0.28	0.22	0.15	0.15	0.04	-0.18

OTHER DEVELOPMENTS

In the March 1998 issue of the AEI, a peak in the XCLI for the September quarter 1997 emerged. Based on the historical performance of the XCLI, a peak in the GDP business cycle sometime between the December quarter 1997 and March quarter 1999 could have been expected. A provisional peak in the GDP business cycle in the March quarter 1999 became apparent in the March 2000 issue of the AEI. The peak, though, did not remain in a subsequent update of the GDP business cycle. In this latest issue, a provisional peak in the GDP business cycle in the December quarter 1998 has emerged, five quarters after the peak in the XCLI.

A provisional trough in the December quarter 1998 XCLI emerged in the June 1999 issue of the AEI, signalling that a trough in the GDP business cycle could be expected to emerge between the March quarter 1999 and the June quarter 2000. A provisional trough in the GDP business cycle in the June quarter 1999, two quarters after the trough in the XCLI, is now apparent in this issue of the AEI.

THE REFERENCE SERIES, GDP

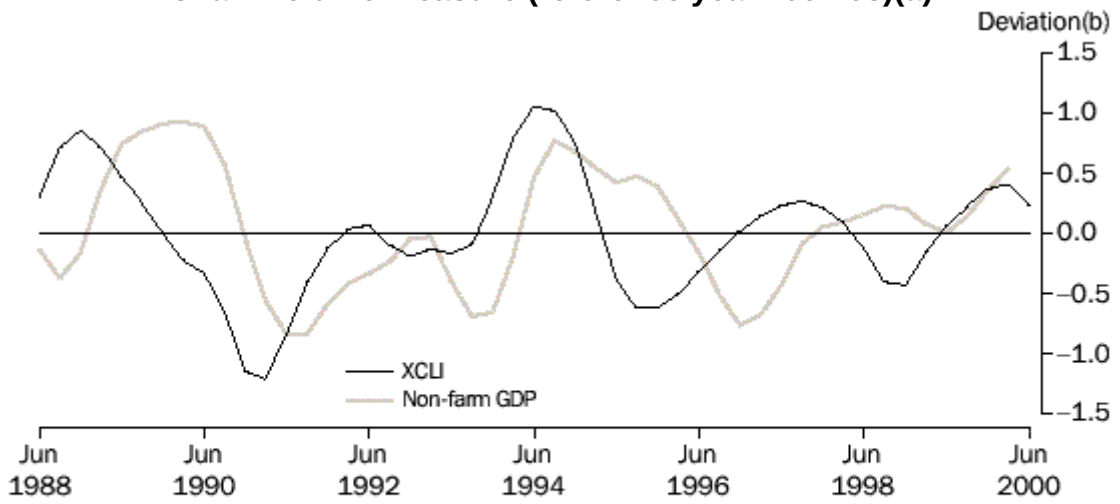
The reference or target series for the XCLI is the GDP business cycle in Australia. The business cycle of a series is defined as the deviation between the trend and the historical long-term trend in the series. Graph 1 shows the business cycles in GDP and the XCLI. Graph 2 shows the level of trend GDP compared with its historical long-term trend.

AN ALTERNATIVE REFERENCE SERIES, NON-FARM GDP

In the December quarter 1995, there was a peak in the business cycle which the XCLI failed to predict. This peak was largely attributable to the effects of a good farm season. The XCLI does not contain an indicator which leads first order farm product effects. In recognition of this, Graph 3 presents an alternative target series, namely, the business cycle of non-farm GDP, chain volume measure.

In the September quarter 1998, the non-farm business cycle recorded a provisional peak. The XCLI, which recorded a peak in the September quarter 1997, led this turning point by four quarters. In addition, the provisional trough in the XCLI in the December quarter 1998 is reflected two quarters later as a provisional trough in the non-farm GDP business cycle in the June quarter 1999.

3. EXPERIMENTAL COMPOSITE LEADING INDICATOR (XCLI) AND THE BUSINESS CYCLE IN NON-FARM GDP
Chain volume measure (reference year 1997-98)(a)



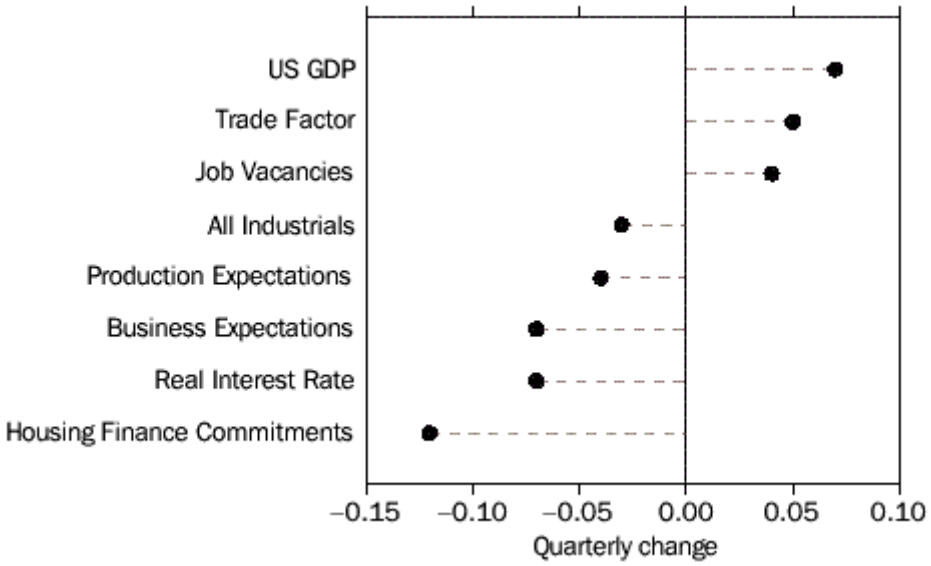
(a) The historical long-term trend growth rate of non-farm GDP is 0.92% in the March quarter 2000 and the trend growth rate is 1.12%.
(b) Deviation is the unit of measure for the GDP series. The XCLI series has no official unit of measure, ie it is dimensionless (see Endnote).

ANALYSIS OF COMPONENT INDICATORS

The XCLI summarises the business cycles present in a selection of economic indicators which had typically shown turning points ahead of the business cycle in GDP from the early 1970s to the early 1990s. Because the evolution of each expansion and contraction in activity presents a unique combination of features, none of the individual component indicators has had an unvarying or perfectly stable leading relationship with GDP. However, when combined to form the XCLI their performance as a group is more stable.

In the June quarter 2000, three of the eight components made positive contributions to the quarterly change in the XCLI and five components made negative contributions (Table 2 and graph 4). Graphs 5 to 12 show each component's trend and historical long-term trend.

4. CONTRIBUTIONS TO QUARTERLY CHANGES IN THE XCLI



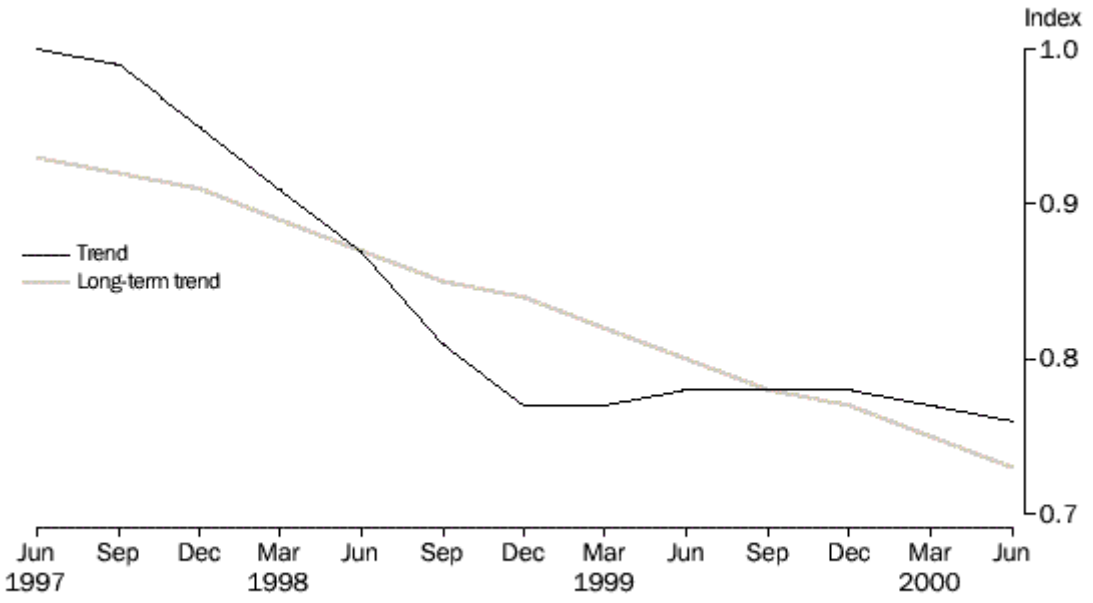
Positive contributions. The components making positive contributions to the quarterly change in the June quarter 2000 XCLI were United States GDP (0.07, Graph 6), the trade factor (0.05, Graph 5) and job vacancies (0.04, Graph 8).

Negative contributions. The components making negative contributions to the quarterly change in the June quarter 2000 XCLI were housing finance commitments (-0.12, Graph 7), the real interest rate factor (-0.07, Graph 10), business expectations (-0.07, Graph 12), production expectations (-0.04, Graph 11) and the All Industrials Index (-0.03, Graph 9).

Trade factor

The trade factor is defined as the ratio between commodity prices in terms of Special Drawing Rights and the price index for imported materials used by Australian producers. This ratio gives an early estimate of the terms of trade. Following three quarters of constant growth, the trade factor trend began to decline in the March quarter 2000 and continued in that direction in the June quarter 2000. The historical long-term trend of the trade factor declined more rapidly than its trend in the June quarter 2000 and as a result, the trade factor component made a positive contribution (0.05) to the change in the XCLI in the June quarter 2000, its sixth consecutive positive contribution.

5. TRADE FACTOR

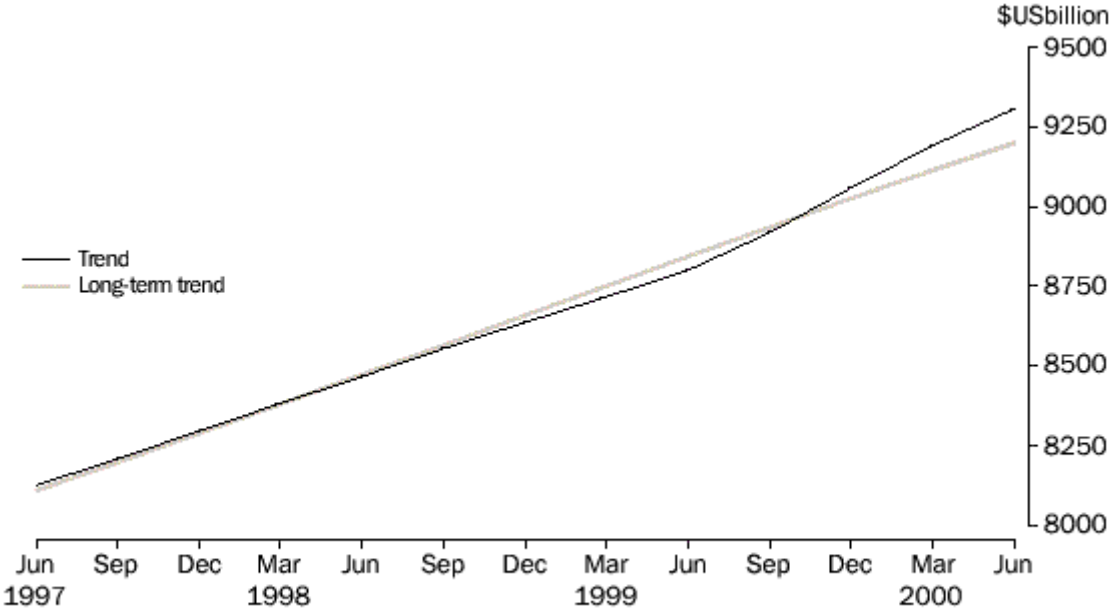


Source: ABS (Cat. no. 6411.0) and RBA Bulletin.

United States GDP

The trend of United States GDP continues to grow more rapidly than its historical long-term trend. The US GDP component made a positive contribution (0.07) to the change in the XCLI in the June quarter 2000, the largest positive contribution of all the components of the XCLI.

6. UNITED STATES GDP, Chain volume measure (Reference year 1996)



Source: US Bureau of Economic Analysis.

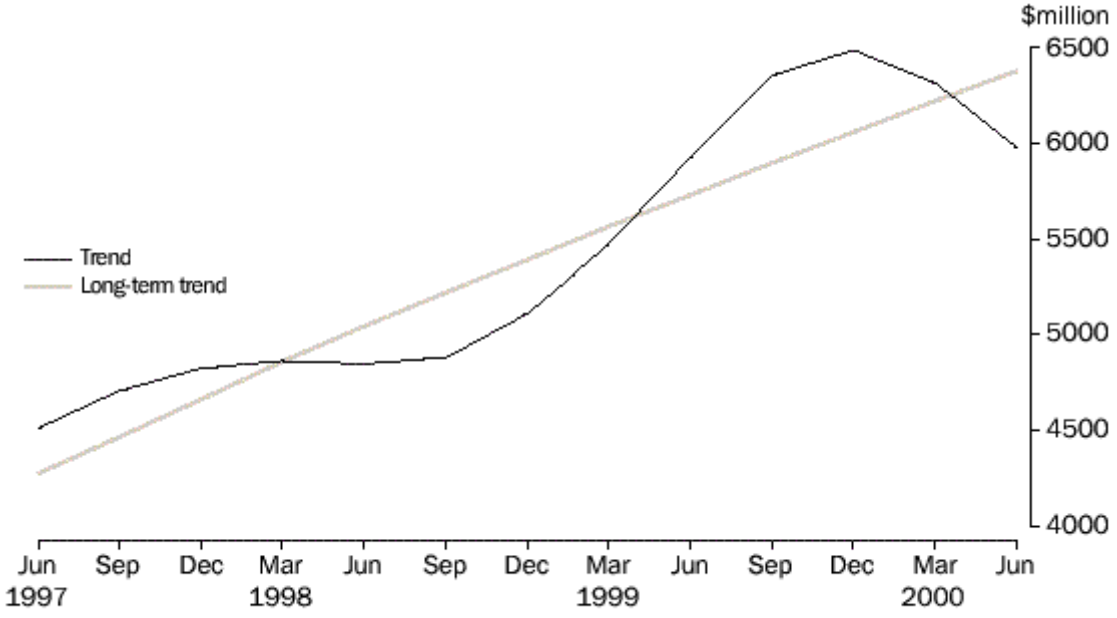
Secured housing finance commitments

Following five quarters of strong growth, the trend of the secured housing finance commitments component began to decline rapidly in the March quarter 2000 and continued to fall even more rapidly in the June quarter 2000. In contrast, the historical long-term trend for secured housing finance commitments continues to rise.

Contributors to the rapid decline in the secured housing finance commitments trend may be expectations of interest rate rises, low levels of First Home Buyer commitments as buyers retreat from the market ahead of the First Home Buyer grant incentive, and a decline in construction finance commitments following high levels in October and November 1999 due to the prospect of increased construction costs associated with the introduction of the GST. The decline in construction finance commitments post October and November 1999 was reflected in a similar strong decline in the trend for total dwelling units approved and private sector houses approved.

The secured housing finance commitments component made a negative contribution (-0.12) to the change in the XCLI in the June quarter 2000, the largest negative contribution to the change in the XCLI of all its components.

7. SECURED HOUSING FINANCE COMMITMENTS

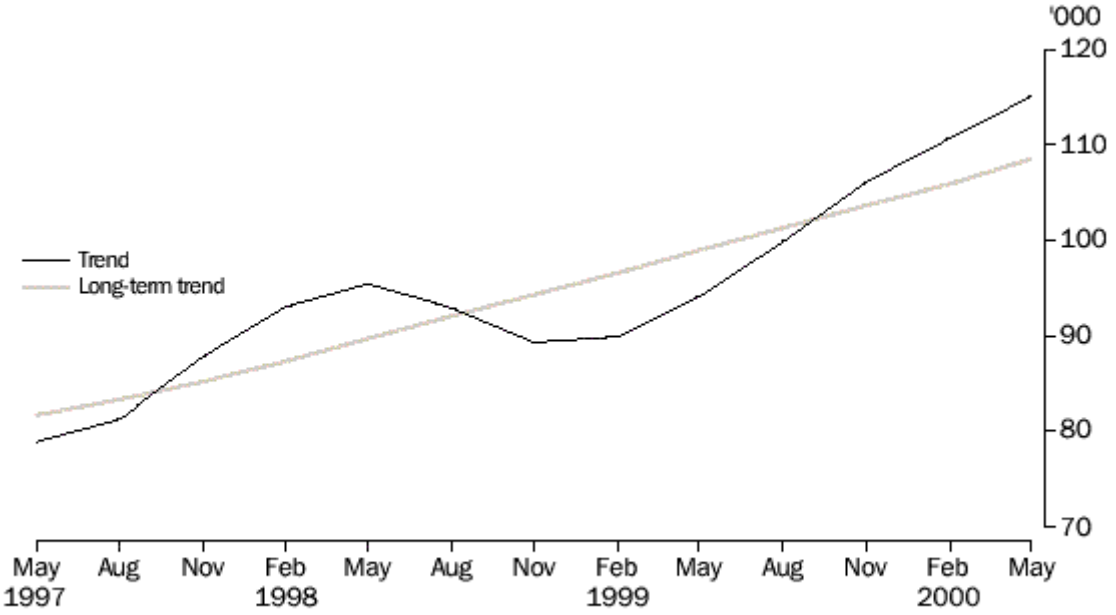


Source: ABS (Cat. no. 5671.0).

Job vacancies
Note that the job vacancies series are referenced to the middle month of a quarter.

The trend in the number of job vacancies continued to rise in May 2000 for the sixth consecutive quarter. The trend series has recorded strong rises in the last five quarters in contrast to quite gradual rises recorded in the historical long-term trend. However, the growth rate in the trend has been decelerating over the last two quarters. Job vacancies made a positive contribution (0.04) to the change in the XCLI in the June quarter 2000.

8. JOB VACANCIES

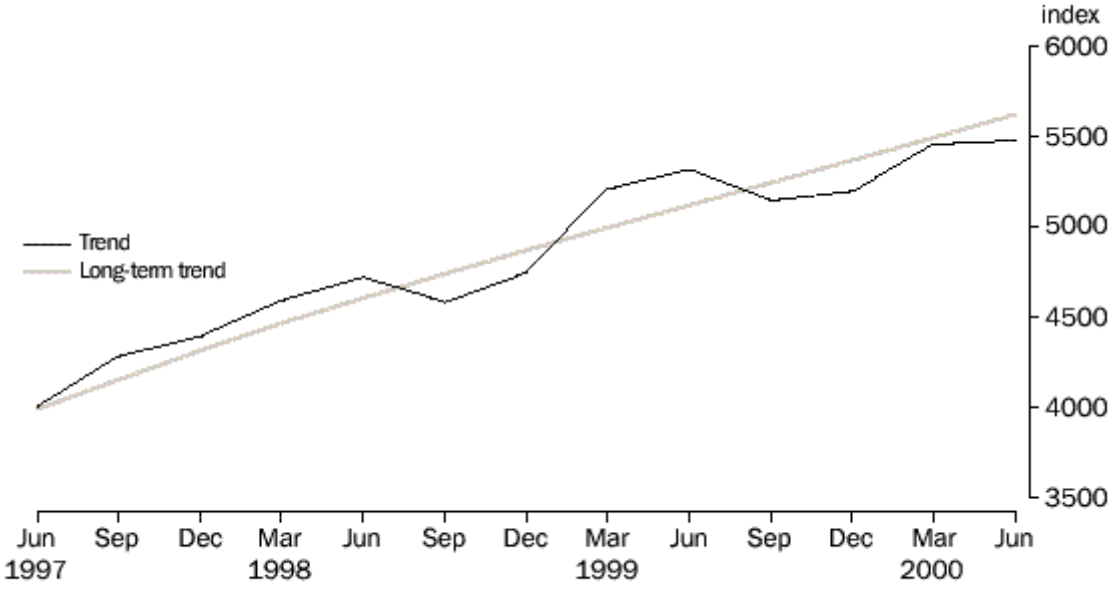


Source: ABS (Cat. no. 6354.0).

All Industrials index

The growth rate of the All Industrials index trend series rose less rapidly than its historical long-term trend growth rate in the June quarter 2000. Consequently, the All Industrials index component made a negative contribution to the change in the XCLI in the current quarter (-0.03).

9. ALL INDUSTRIALS INDEX



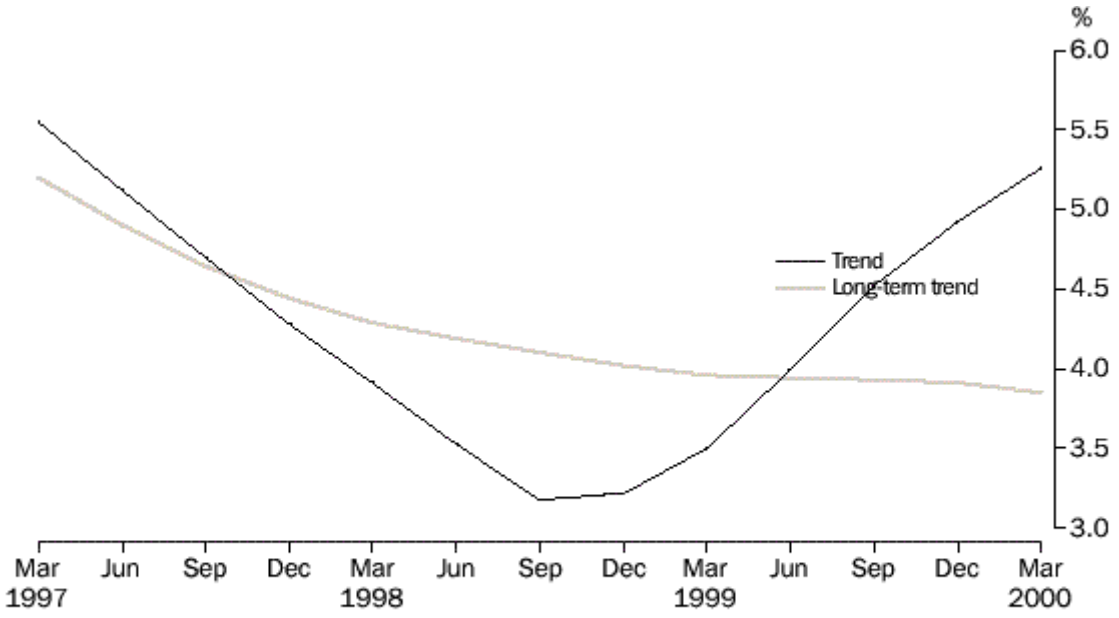
Source: Australian Stock Exchange.

Real interest rate

The XCLI uses the inverse of the difference between the trend and the historical long-term trend of the real interest rate, lagged four quarters. Therefore, it is the June quarter 1999 movement of the real interest rate that contributes to the June quarter 2000 movement in the XCLI. The real interest rate component (once inverted) made a negative contribution to the change in the XCLI (-0.07) in the June quarter 2000.

Since the December quarter 1998, the real interest rate trend has been rising, although at a decelerating rate over the last two quarters, while its historical long-term trend has been declining. The implication of this relationship is that real interest rates are likely to continue to make negative contributions to the change in the XCLI in the next few quarters.

10. REAL INTEREST RATE



Source: ABS (Cat. no. 5206.0) and Treasury.

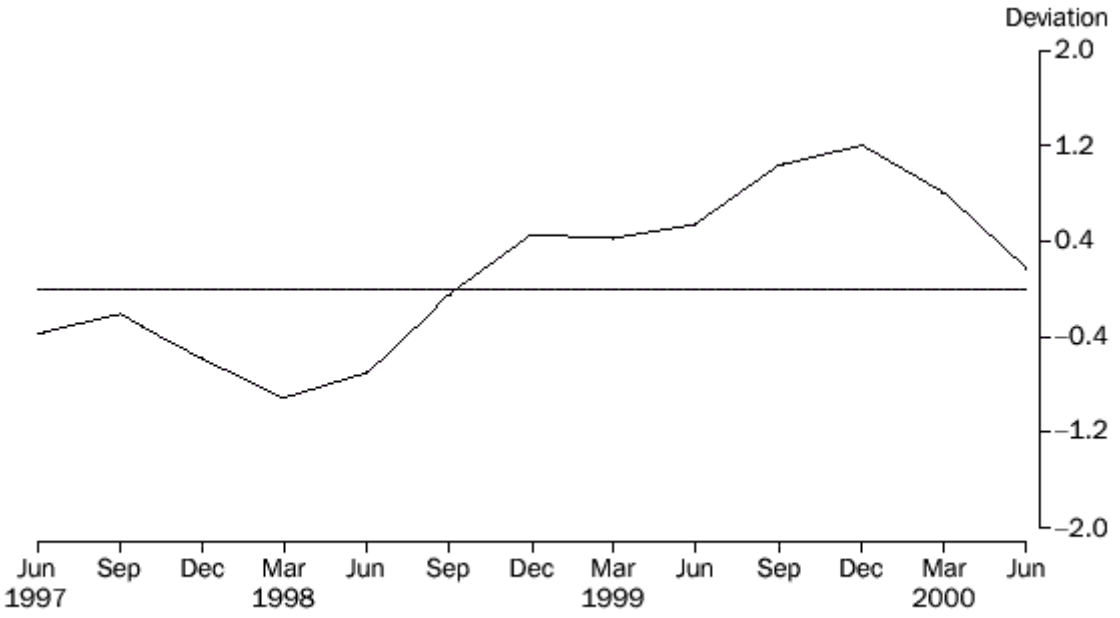
Production and business expectations
Note: These components are lagged one quarter in the compilation of the XCLI. Like other XCLI components, the production expectations and business expectations series have been smoothed and standardised to display cyclical behaviour. However, these series are not considered to exhibit long-term trend growth.

In the June quarter 2000, trend production expectations continued to decline, but still remained modestly positive. As a result of the decline in the trend in the March quarter 2000, this component made a negative contribution (-0.04) to the change in the XCLI in the June quarter 2000.

Trend business expectations also continues to decline, recording a second consecutive negative growth. The decline has been more rapid in the June quarter 2000 than previous quarters. According to the June quarter 2000 Survey of Industrial Trends (by the ACCI and Westpac Banking Corporation), concerns about rising interest rates and uncertainties associated with early stages of the GST caused a major fall in business confidence in this quarter. This component made a negative contribution to the change in the XCLI in the June quarter 2000.

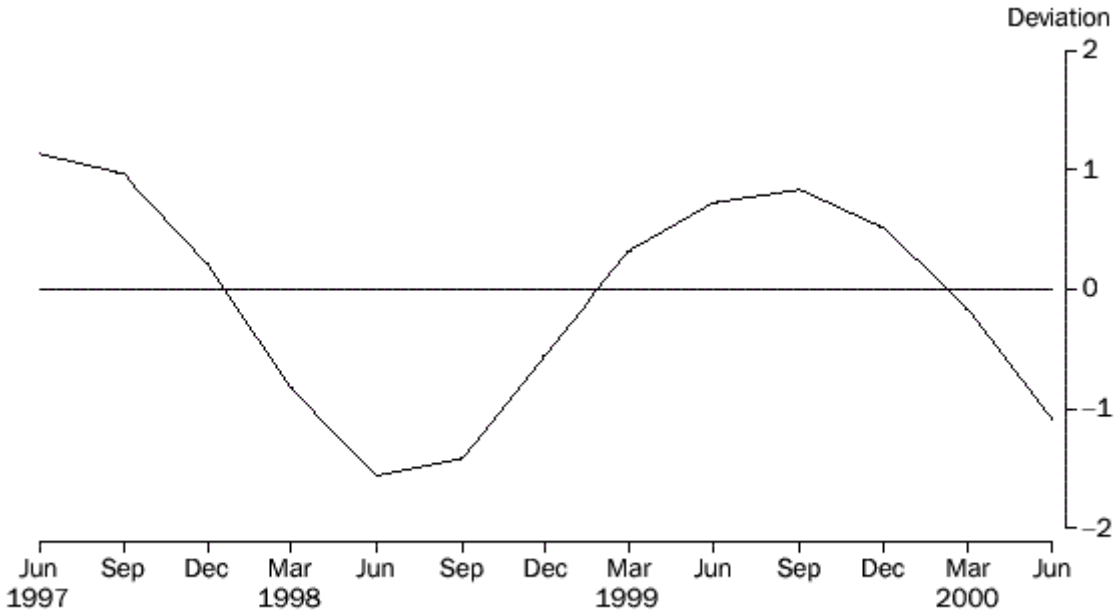
Note: The source of these expectations series is the Australian Chamber of Commerce and Industry, and Westpac Banking Corporation, Survey of Industrial Trends. The ABS also compiles business expectations data. However, these cannot yet be included as a component of the XCLI due to the insufficient length of the time series.

11. PRODUCTION EXPECTATIONS, Trend



Source: ACCI and Westpac and Survey of Industrial Trends.

12. BUSINESS EXPECTATIONS, Trend



Source: ACCI and Westpac and Survey of Industrial Trends.

LONGER TIME SERIES AND FURTHER DETAILS

Details of the compilation of the XCLI index can be found in **An Experimental Composite Leading Indicator of Australian Economic Activity**, (1347.0), June 1993, and in the feature articles published in Australian Economic Indicators (1350.0) in August and October 1992 and May 1993.

Longer time series of the data presented in this XCLI note are now available on PC AUSSTATS. For further information about these statistics, contact Costa Pappas (02) 6252 6161.

ENDNOTE

The unit of measurement varies between XCLI components. For example, the real interest rate is measured as a per cent, job vacancies as a number, United States GDP in dollar terms and the trade factor is measured in index number form. Each component is therefore standardised to make their contributions to the XCLI comparable.

The standardisation procedure gives each XCLI component an average value of 1. The variation of each component about its average is also standardised, so that the average deviation also equals 1. Chain volume GDP (the reference series) is also standardised in the same way.

Graphs 1 and 3 use the standardised forms of the XCLI, GDP and non-farm GDP series. The graphs show the deviation of the standardised series from their respective historical long-term trends. Because of the standardisation procedure, the deviation measure has no particular unit (i.e. it is not measured in dollars, or per cent change, or any other real world unit).

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